

**BRFSS Adult Asthma Callback Survey
Louisiana, 2009-2010 Results**

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Introduction

Asthma prevalence is defined as the number of people who have asthma (both old and new cases), in a particular population during a period of time. In Louisiana, the prevalence of asthma in adults is tracked through the Behavioral Risk Factor Surveillance Survey (BRFSS) – an annual, statewide telephone survey of Louisiana adults ages 18 and older that collects data on a variety of health conditions and health risk behaviors – and by the Asthma Call Back Survey (ACBS). The later, targets those adults who indicated ever having been diagnosed with asthma in their lifetime by a health care professional, on the BRFSS, and collects information specifically on asthma related topics such as, self-management education, asthma control, cost of care, environmental triggers and modifications, comorbid conditions, work-related asthma, and medications.

In order to increase the total number of respondents and decrease the range of error, this report combines data from the 2009 and 2010 ACBS. However, sample size is low and therefore, data presented in this report represent estimates of rates and as such, should be interpreted with caution. Confidence intervals were included throughout the report to indicate the margin of error associated with survey results. Finally, responses were weighted to represent the entire asthma population in Louisiana.

Adult Asthma Prevalence

A total of five hundred and one adults were interviewed in the 2009 and 2010 Louisiana ACBS combined. Among the respondents, 63.7% (386) reported currently having asthma at the time of the survey; 34.9% (155) reported that they did not currently have asthma at the time of the survey, and 1.3% (10) said that they did not know their disease status. The survey results suggest that, women are more likely than men to report that they currently have asthma. Caucasians and Louisiana residents ages 55+ are also more likely than any other race and age group, respectively, to report that they currently have asthma (Table 1).

Table 1: Demographic characteristics among adults with current asthma, LA ACBS 09-10 combined

Characteristic	Current Asthma (n)	Percent (%)	95% CI
Gender			
Male	79	40.1	[29.4- 50.5]
Female	307	60.0	[49.5 – 70.6]
Race			
White	259	56.0	[46.3 – 65.7]
Black	101	32.4	[23.9 – 41.0]
Other	14	8.6	[0.0 – 18.0]
Age			
18-44	71	49.3	[39.8 – 58.8]
45-54	83	19.9	[14.2 – 25.6]
55-64	115	14.3	[10.4 – 18.1]
65+	117	16.6	[12.4 – 20.7]

The statistical definition of a 95% confidence interval is the range of possible values within which the true value is expected to fall 95 times out of 100. A wide confidence interval indicates that a relatively small number of individuals were included in the survey and the estimate is less reliable.

Assessment and Monitoring

In the “EPR-3: Guidelines for the Diagnosis and Management of Asthma,” published by the National Asthma Education and Prevention Program in 2007, define impairment as “an assessment of the frequency and intensity of symptoms and functional limitations that a patient is experiencing or has recently experienced.” According to the survey, about 60% of respondents with current asthma had experienced an asthma attack in the last 12 months; 41.3% missed work or school and 68.3% were unable to carry out usual activities due to asthma over the last year; and 21.4% experience disruption in their sleep due to asthma (Table 2).

Table 2: Measures of impairment among adults with current asthma, LA ACBS 09-10 combined

	Current asthma (n)	Percent (%)	95% CI
Had an asthma attack in past 30 days	262	66.1	[57.7 – 74.4]
Sleep disrupted in past 30 days	141	34.5	[25.0 – 44.0]
Asthma attack in past 12 mo	222	60.5	[51.8 – 69.2]
Missed work/school due to asthma in past 12 mo	156	41.3	[32.3 – 50.4]
Unable to carry out usual activities due to asthma in past 12 mo	268	68.3	[60.3 – 76.3]
Had one or more urgent office visits for worsening symptoms in past 12 mo	102	21.4	[15.8 – 27.1]
Had one or more emergency department visits for asthma in the past 12 mo	63	19.6	[11.0 – 28.2]
Had one or more hospital overnight stay in past 12 mo	30	10.1	[2.1 – 18.0]

Self-Management Education

The EPR-3 guidelines emphasizes the importance of asthma self-management education for patients at all points of care (i.e. clinic settings, emergency departments and hospitals, pharmacies, schools and other community settings, and patient’s home) in order to improve outcomes. According to the guidelines, patients should be taught how to monitor their level of asthma control and signs of worsening asthma (either by monitoring their symptoms or using a peak flow meter), take medication correctly (e.g. inhaler technique), avoid environmental triggers, and reinforce the use of an asthma action plan previously developed with a healthcare provider. According to the survey, the majority of adults with current asthma indicated ever being taught to recognize early asthma symptoms (60.0%) and what to do during an asthma attack (67.1%). On the other hand, only 18.6% of the respondents with current asthma stated ever receiving an asthma action plan and only 7.7% indicated ever having taken an asthma management course (Table 3).

Table 3: Measures of self-management education among adults with current asthma, LA ACBS 09-10 combined

	Current asthma (n)	Percent (%)	95% CI
Taught to use peak flow meter to adjust daily medications	166	41.9	[32.6 – 51.1]
Ever received an asthma management plan	88	18.6	[12.9 – 24.3]
Ever taken a course on managing asthma	38	7.7	[4.3 – 11.1]
Taught to recognize early symptoms of an asthma attack	235	60.0	[50.4 – 70.0]
Taught what to do during an asthma attack	270	67.1	[57.4 – 76.7]

Control of Comorbid Conditions

Conditions such as chronic obstructive pulmonary disease (COPD), emphysema, chronic bronchitis, and psychological disturbances, are often observed in asthmatic patients and may affect asthma control and outcomes. COPD is a broad term that encompasses both emphysema and chronic bronchitis. Because COPD is a relatively new term and because some individuals may know the condition by different names (COPD, emphysema, and chronic bronchitis) the Asthma Callback Survey includes separate questions about the respondent's history of COPD, emphysema, and chronic bronchitis. The results of the Louisiana ACBS indicate that almost 50% of current asthmatics had also been diagnosed with chronic bronchitis, and that 41.4% had been diagnosed with depression (Table 4).

It is important to emphasize that these findings do not imply that having asthma causes these conditions or vice versa. It simply shows that there is an association between these conditions, but more research is needed to determine how they are related.

Table 4: Comorbid conditions among adults with current asthma, LA ACBS 09-10 combined

Healthcare professional also diagnosed	Current asthma (n)	Percent (%)	(95% CI)
COPD	109	16.6	[12.0 – 21.2]
Emphysema	54	8.1	[5.2 – 11.0]
Chronic bronchitis	189	49.3	[39.6 – 59.0]
Depression	172	41.4	[31.9 – 50.8]

Control of Environmental Factors

Asthma episodes can be set off or exacerbated by environmental factors found in the home, such as mold, biologic allergens (i.e. concentrations of dust mites, cockroaches, and animal dander allergens), combustion of malfunctioning or improperly used devices (i.e. gas stoves or wood burning fireplaces), and smoking. Table 5 shows questions in the ACBS about environmental triggers found in the homes of the respondents with current asthma. The most common environmental triggers found in the homes of respondents with current asthma were indoor pets (54.3%) and bedroom carpeting or rugs (57.9%) (Table 5).

Table 5: Environmental triggers in the homes of adults with current asthma, LA ACBS 09-10 combined

	Current asthma (n)	Percent (%)	95% CI
Gas used for cooking	149	35.7	[26.8 – 44.7]
Mold seen or smelled inside home	47	16.3	[7.7 – 24.8]
Household has indoor pets	161	54.3	[45.3 – 63.2]
Pets allowed in bedroom	113	28.0	[20.9 – 35.1]
Saw cockroach inside home	139	34.5	[25.6 – 43.4]
Saw rodents inside home	31	9.3	[4.8 – 13.8]
Wood burning fire place or stove used	54	19.0	[11.6 – 26.5]
Unvented gas appliances used	33	8.0	[4.5 – 11.6]
Smoking done inside home	91	34.2	[23.6 – 44.8]
Carpeting and rugs inside bedroom	230	57.9	[48.5 – 67.3]

Certain modifications to the home environment can significantly reduce asthma triggers and in turn asthma episodes. For instance, reducing indoor humidity to below 60%, allowing for adequate ventilation, and using an air purifier are three effective ways for improving air quality in the home. In addition, using protective covers on bedding and washing bedding in hot water are effective ways of controlling exposure to dust mites and other biological allergens. The percentages of those respondents with current asthma who reported doing these key activities are listed in Table 6. Only about one third respondents with current asthma stated being advised by a healthcare professional on how to improve home environment.

Table 6: Home modifications among adults with current asthma, LA ACBS 09-10 combined

	Current asthma (n)	Percent (%)	95% CI
Advised to improve environment at home	141	36.7	[27.6 – 45.8]
Kitchen exhaust fan with vents to the outside regularly used	259	64.9	[55.3 – 74.6]
Dehumidifier regularly used inside home	64	16.4	[10.5 – 22.2]
Air cleaner or purifier regularly used inside home	116	28.9	[21.2 – 36.7]
Used mattress cover to control dust mites	134	29.1	[21.9 – 36.4]
Used pillow cover to control dust mites	130	26.3	[19.7 – 33.0]
Washed sheets & pillow cases in warm/hot water	266	65.7	[56.4 – 75.0]
Bath exhaust fan with vents to the outside regularly used	195	48.7	[39.2 – 58.3]

Medications

The Louisiana ACBS includes questions regarding use of medications, including inhalers, pills, and nebulizers. The most common type of medication used by an adult with current asthma in Louisiana was a short-acting beta-2-agonist inhaler (45.1%).

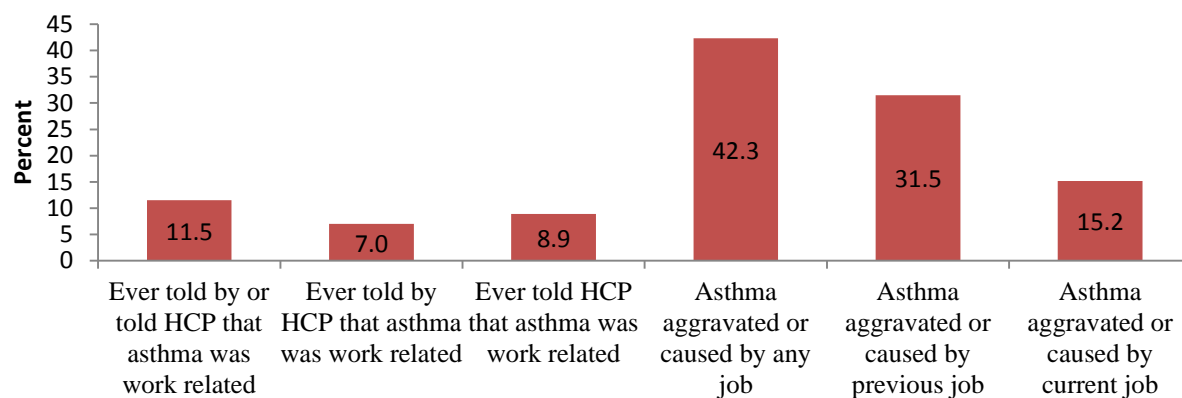
Table 7: Medication used by adults with current asthma, LA ACBS 09-10 combined

	Medications used in last 3 months	Current Asthma (n)	Percent (%)	95% CI
INHALERS	Used inhaled corticosteroid	132	26.5	[19.6 – 33.3]
	Used inhaled anti-inflammatory	<5	0.4	[0.0 – 1.2]
	Used inhaled anticholinergic	23	4.0	[1.8 – 6.2]
	Used inhaled short-acting beta2-agonist	170	45.1	[35.4 – 54.8]
	Used inhaled long-acting beta2agonist	118	22.4	[16.2 – 28.5]
PILLS	Used corticosteroid	18	3.0	[1.3 – 4.8]
	Used leukotriene modifier	54	9.9	[6.2 – 13.7]
	Used beta2agonist	<5	0.1	[0.0-0.3]
	Used methylxanthine	10	1.7	[0.4 – 3.0]
NEBULIZERS	Used corticosteroid	<5	0.3	[0.0-0.8]
	Used anti-inflammatory	0	-	-
	Used anticholinergic	13	1.4	[0.5 – 2.3]
	Used adrenergic bronchodilator	83	22.3	[13.3 – 31.4]

Work-Related Asthma

Occupational or work-related asthma occurs when a person develops asthma symptoms in response to an exposure to dust, fumes, gases or other irritants in the workplace. The Louisiana ACBS includes several work-related asthma questions that aim to find out first, whether a respondent's asthma was cause or aggravated by environmental triggers at their current or previous job; and second, whether or not a healthcare provider had ever told the respondent that their asthma was caused or aggravated by environmental triggers in their current or previous job. Figure 2 shows the results of these questions. In Louisiana, 42.3% of respondents with current asthma reported that asthma was aggravated or caused by any job, but only 7.0% answered that a healthcare provider ever told them that their asthma was caused or aggravated by their job.

Figure 1: Work-related asthma among adults with current asthma, LA ACBS 09-10 combined



Cost of Care

According to the Asthma and Allergy Foundation of America (AAFA), the estimated annual cost of asthma in the United States is nearly \$18.3 billion, including nearly \$10.1 billion in direct costs – medicines and healthcare services – and \$8.2 billion in indirect costs, such as lost productivity due to missed days at school or work. Cost of care could be a barrier to asthma control for many individuals. According to the survey, approximately 20% of respondents with current asthma reported not having some type of health insurance. In addition, less than 25% of respondents with current asthma felt that cost was a barrier to seeing a primary doctor, a specialist, or to buying asthma medications (Table 8).

Table 8: Cost as a barrier to asthma care among adults with current asthma, LA ACBS 09-10 combined

	Current asthma (n)	Percent (%)	95% CI
Have any kind of health insurance / coverage	330	78.7	[68.4 – 89.0]
Cost a barrier to see primary care doctor	52	18.3	[9.0 – 27.6]
Cost a barrier when referred to specialist	29	11.9	[2.4 – 21.4]
Cost a barrier when buying asthma medications	91	25.6	[16.4 – 34.8]

